REMARKS

Claim 19 is canceled without prejudice, claims 39 to 43 have been added, and therefore claims 17, 18, 21 to 24, 27 to 29 and 31 to 43 are pending in the present application.

In view of the following, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

Claims 17 to 19, 21 to 24, 27 to 29 and 31 to 38 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,813,370 ("Arai") in view of U.S. Patent No. 6,130,706 ("Hart").

Claims 17, 18, 21 to 24, 27 to 29 and 31 to 38 remain pending among the rejected claims.

To reject a claim under 35 U.S.C. § 103(a), the Office bears the initial burden of presenting a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish *prima facie* obviousness, three criteria must be satisfied. First, there may be some suggestion or motivation to modify or combine reference teachings. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination may be found in the prior art and not based on the application disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

As clearly indicated by the Supreme Court, it is "important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. *See KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007). In this regard, the Supreme Court further noted that "rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.*, at 1396. Second, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim features. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974).

While the rejections may not be agreed with, to facilitate matters, independent claims 17, 27, 34, 37 and 38 have been rewritten to better clarify the claimed subject matter.

Claim 17 includes the features of "*determining a sampling vector drawn from a zero coordinate point of each of the at least two image sensors to each of the fixed image points; determining x, y and z component values of each sampling vector; determining the at least one measured value from the determined image coordinates as a function of a variation in the sampling vector component values from one image in the image sequence to a subsequent image in the image sequence, the measured value being used for vehicle dynamics control.*"

As provided in claim 17, the sampling vectors are three-dimensional representations of imaginary lines drawn from the center of an image sensor to a stationary object. Based on changes in the coordinates of the sampling vectors, a measured value can be determined and used as a basis for vehicle dynamics control.

In contrast, Arai refers to a lane marker detection system that does not use a three-dimensional vector approach to vehicle dynamics control. Even if Arai might indicate that a point in a lane can be converted into x, y and z coordinates using parallax (estimated distance) information in conjunction with two-dimensional (i, j) coordinates, the position of the lane point does not provide the information needed for vehicle dynamics control, i.e., information about the vehicle's motion, such as rotational vectors and motion vectors.

Instead, it is readily apparent that Arai is primarily concerned with detecting the position of the lane markers relative to the vehicle in order to track lane movement rather than vehicle movement.

Additionally, Arai does not provide any disclosure regarding three-dimensional tracking of fixed objects using vectors. The lane points of Arai are calculated along horizontal line segments at various intervals (Arai, Fig. 8). The segments are then incorporated into a lane model to generate an approximation of the shape of the left and right lanes (col. 13, lines 5 to 29). The lane model does not include tracking of vehicle movement relative to any particular point. That is, *each lane point is not tracked across a sequence of images in order to determine vehicle movement.* Rather, position of each lane point is used for determining the lane shape for the portion of the road ahead of the vehicle camera. Therefore, even though each individual lane point may be represented as a three-dimensional set of coordinates, Arai does not provide for tracking the movement of the vehicle relative to the position of a particular lane point over time, i.e., *over an image sequence.*

As to the vehicle dynamics considerations assertedly disclosed in col. 7, line 13 of Arai, this section merely refers to providing an allowance for the *effects* of vehicle behavior in adjusting the width of a detection area. It does not describe, or even suggest how that

vehicle behavior is determined, e.g., whether the vehicle behavior is determined using the lane detection. Accordingly, Arai fails to identically disclose or suggest "*determining x, y and z component values of each sampling vector*" and "*determining the at least one measured value from the determined image coordinates as a function of a variation in the sampling vector component values from one image in the image sequence to a subsequent image in the image sequence, the measured value being used for vehicle dynamics control.*"

Hart fails to remedy the deficiencies of Arai as to the claim 17. As shown in Figures 1 through 5B, Hart utilizes a two-dimension (x, y) coordinate system rather than a system that describes a vector in terms of *x, y and z component*s. Additionally, as explained above, Arai does not refer to three-dimensional tracking in accordance with claim 17, as presented. Thus, the combination of these two references does not provide any reason to extend the two-dimensional vector determination of Hart into three dimensions.

Accordingly, claim 17, as presented, is allowable, as are its dependent claims 18 and 21 to 23.

Claims 27, 37 and 38, as presented, include features similar to those of claim 17. Accordingly, claims 27, 37 and 38, as well as dependent claims 28, 29 and 31 to 33 are allowable for at least the same reasons as claim 17.

Claim 24 includes the feature in which "*a viewing direction of a first one of the at least two image sensors is oriented towards a direction of travel and a viewing direction of a second one of the at least two image sensors is oriented towards a direction opposite to the direction of travel.*" Placing an additional camera improves three-dimensional capturing of the vehicle motion, because a motion detected along an axis of one sensor may be detected as a corresponding motion along a different axis of another sensor. This, in effect provides for redundant capturing of vehicle motion, and therefore improved reliability for the results of motion determination.

In contrast, neither Arai nor Hart even refer to cameras arranged in opposite directions, i.e., along the direction of travel and opposite the direction of travel. Further, the Office Action has not specifically cited any sections of the cited references which might suggest this feature. Accordingly, claim 24, as presented, is allowable over the combination of Arai and Hart.

Claim 34 includes the feature in which "*the processing of the image information includes determining sampling vectors drawn from a zero coordinate point of each of the at*

least two image sensors to a fixed image point in each image of a sequence of images sensed by the image sensor system, each image point corresponding to a stationary object, and the sampling vectors being represented in a three-dimensional Cartesian coordinate system; an arrangement configured to determine the at least one measured value as a function of a variation in the sampling vector component values from one image in the image sequence to a subsequent image in the image sequence." As discussed above, the combination of Arai and Hart does not disclose or suggest three-dimensional tracking of fixed points over a sequence of images, in particular via sampling vectors drawn to those fixed points.

Accordingly, claim 34 as presented, as well as dependent claims 35 and 36, are allowable, for at least the same reasons as claim 17.

As further regards all of the obviousness rejections, any Official Notice is respectfully traversed to the extent that it is maintained and it is requested that the Examiner provide specific evidence to establish those assertions and/or contentions that may be supported by the Official Notices under 37 C.F.R. § 1.104(d)(2) or otherwise. In particular, it is respectfully requested that the Examiner provide an affidavit and/or that the Examiner provide published information concerning these assertions. This is because the § 103 rejections are apparently being based on assertions that draw on facts within the personal knowledge of the Examiner, since no support was provided for these otherwise conclusory and unsupported assertions. (See also MPEP § 2144.03).

Withdrawal of the obviousness rejections of claims 17, 18, 21 to 24, 27 to 29, and 31 to 38 is therefore respectfully requested.

New claims 39 to 43 do not add any new matter and are supported by the present application, including the specification. Claims 39 to 43 depend from claim 17 and they are therefore allowable for the same reasons. Additionally, claims 39 to 43 include further features, which are simply not disclosed nor suggested by the applied references, and they are therefore allowable for these further reasons.

In sum, claims 17, 18, 21 to 24, 27 to 29 and 31 to 43 are allowable.

CONCLUSION

It is therefore respectfully submitted that claims 17, 18, 21 to 24, 27 to 29 and 31 to 43 are allowable. It is therefore respectfully requested that the rejections and objections be withdrawn, since all issues raised have been addressed and obviated. An early and favorable action on the merits is therefore respectfully requested.

Respectfully submitted,

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